

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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IN THE APPLICATION OF:

LAIMUTE R. SVARCAS, WILLIAM K.S. CLEVELAND, AND JOHN L. PETRIC

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CUSTOMER NUMBER: 26645

SERIAL NO.: 10/511,247

EXAMINER: V. VASISTH

FILED: OCTOBER 13, 2004

GROUP ART UNIT: 1797

TITLE: LUBRICANT COMPOSITION SUITABLE FOR DIRECT FUEL INJECTED,  
CRANKCASE-SCAVENGED TWO-STROKE ENGINES  
Wickliffe, Ohio

Hon. Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**DECLARATION UNDER 37 C.F.R. §1.132**

I, Patrick Mosier, declare as follows:

I received a bachelor's degree in the field of chemistry in 1989 from Purdue University, a master's degree in the field of chemistry in 1991 from the University of Michigan, and a Ph.D. in the field of inorganic chemistry in 1995 from the University of Michigan.

I have been employed by The Lubrizol Corporation since 2000. Since that time I have been responsible for development of new chemicals and products to improve the performance of engine oil lubricants. I spent three years as a laboratory chemist investigating new polymeric viscosity modifiers, polymeric dispersants, antioxidants, and anti-wear agents. Subsequent to that, I have spent much of the last six years working as a technology manager in the area of Engine Oils; during this time, I have been responsible for the development of new components for anti-wear as well as base oil technology manager for Engine Additives. I have general knowledge in the area of chemical synthesis as well as special knowledge in the area of lubricant additive chemistry.

I certify that this correspondence is being deposited with the United States Postal Service as first class express mail in an  
envelope addressed to Commissioner for Patents, PO Box 1450, Alexandria VA 22313-1450 (Exp Mail)  
on VIA USPS EFS on 5-13-09 By: Nancy S. Dedek

I am familiar with the invention claimed in the above-mentioned case and with the references which were used in the rejection thereof.

In order to illustrate the improvement in performance of the compositions of the above invention, the following experiments were performed by me:

I ordered the preparation and testing of the materials as shown in the following Table:

Material, %	Comp Ex 1	Ref Ex. 1	Inv Ex 3
(a) Base Oil (Citgo™ Gp I, 325 N)	83.7	83.7	87.0
(b-1) Acid/amine condensate	4.3	4.3	5.0
(b-2) Mannich dispersant, including 12% oil		6.0	6.0
Aminophenol, including 40% oil	12.0	6.0	
(d) Dialkylphenylamine antioxidant			2.0
Total N content of lubricant	0.34	0.38	0.47

Inventive Example 3 is within the scope of the present claims. Comparative Example 1 is very close to Example B in Table 1 of Blythe. In particular, the aminophenol product that was tested is the same as that of Example A-6 of Blythe (which was actually used in Blythe's Example D). The material of A-6 is quite similar to that of Example A-8. The reaction product as described in Example A-8 in Blythe is an alternate method of producing an amine substituted alkylated phenol; the alkylphenol of A-7 is coupled with formaldehyde, nitrated, and then converted to an amine by reaction polyethylene polyamine. While there are structural differences between the aminophenol of Example A-6 and that of A-8, they perform at an equivalent level. The material of A-6 is a commercially available material, an amino phenol derived from nitration of polybutenyl-substituted phenol followed by reduction with hydrazine hydrate. On the other hand, the material of A-8 is not commercially available. At this time, the resources and expertise necessary to reproduce the material of example A-8 adequately and in a timely fashion are not available. Hasty and ill-advised attempts to re-produce the results of A-8 are believed to provide a higher risk of confounding the results than using the perform alike A-6. Moreover, Blythe seems to indicate that, as far as he is concerned, the selection of one particular material versus another is not of any consequence.

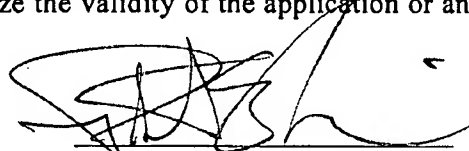
I subjected the three samples to a MHT TEOST test (ASTM 7097B), which is the thermo-oxidation engine oil simulation test which predicts the high temperature deposit forming tendencies of an engine oil. I compared the reference material from Blythe (Comparative Example 1) against a composition within the present claims (Inventive

Example 3), in which the 12% A-6 is replaced with 6 percent of a Mannich dispersant, based on dimethylamine. (Since the amounts of diluent oil in these materials are different, the amounts of active chemical are quite similar.) Also present in Inventive Example 3 was 2% aromatic amine antioxidant. The results are shown in this table:

MHT TEOST Test:	Comp Ex 1	Ref Ex. 1	Inv Ex 3
Net Deposits, Depositor Rod (mg)	55.1	27.2	6.9
Filter net deposits (mg)	2.3	1.0	0.4
Total Deposits (mg)	57.4	28.2	7.3

The result of these changes was a dramatic reduction in total deposits, from 57.4 mg to only 7.3 mg. It is my opinion that this improvement is not merely because of the addition of the antioxidant. This is because, in Reference Example 2, the antioxidant is not even present, but half of the material of A-6 was replaced by the Mannich dispersant, and already this leads to a significant improvement. It is the combination of the aromatic amine antioxidant and the Mannich dispersant that leads to the improvement in deposit performance compared with Blythe

I further declare that all statements herein made of my own knowledge are true and all statements herein made on information and belief are believed to be true. I understand that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

  
Patrick Mosier

5/12/2009 (date)